

Toth et al.

S/N: 10/605,789

REMARKS

Claims 1, 2, 5, 6, 8-14, and 16-23 are pending in the present application. In the Final Office Action mailed October 12, 2005, the Examiner objected to claims 1, 8, 9, 13, and 16. The Examiner then rejected claims 1, 2, and 8-10 under 35 U.S.C. §103(a) as being unpatentable over Moore (USP 4,181,858). The Examiner next rejected claim 5 under 35 U.S.C. §103(a) as being unpatentable over Moore as applied to claim 1 above, and further in view of Popescu (USP 6,501,828). Claim 6 is rejected under 35 U.S.C. §103(a) as being unpatentable over Moore and Popescu as applied to claim 5 above, and further in view of Hsieh (USP 5,970,112). Claims 11, 14, and 16 are rejected under 35 U.S.C. §103(a) as being unpatentable over Moore in view of Hoffman et al. (USP 6,137,857). Claims 12 and 13 are rejected under 35 U.S.C. §103(a) as being unpatentable over Moore and Hoffman et al. as applied to claim 11 above, and further in view of Hsieh. Claims 17 and 19-21 are rejected under 35 U.S.C. §103(a) as being unpatentable over Popescu in view of Toth et al. (USP 6,307,918) and Moore. Claim 18 is rejected under 35 U.S.C. §103(a) as being unpatentable over Popescu, Toth et al., and Moore as applied to claim 17 above, and further in view of Gunji et al. (JP 08-266523). Claims 22 and 23 are rejected under 35 U.S.C. §103(a) as being unpatentable over Popescu, Toth et al., and Moore as applied to claim 17 above, and further in view of Winter (USP 4,998,268).

Regarding the objections made by the Examiner, Applicant has amended claims 1, 8, 9, 13, and 16 to address the objections made. It is not believed that the amendments made would require additional consideration and/or search as they address grammatical and/or typographical issues raised by the Examiner to improve the readability of the claims.

Regarding claims 1, 2, and 8-10, Applicant respectfully requests reconsideration of the rejection thereto. The Examiner acknowledged that "Moore does not disclose the tail of the second filter positioned at a distal end of the second moveable filter relative to the x-ray source," but concluded that, "It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the apparatus of Moore with the tail of the second filter positioned at a distal end of the second moveable filter relative to the x-ray source, since rearranging parts of an invention involves only routine skill in the art." OFFICE ACTION, October 12, 2005, pp. 4-5. According to the Examiner, "One would be motivated to make such a modification to create more area for placing sensors and to reduce

Toth et al.

S/N: 10/605,789

components holding sensors (fig. 3a) as implied by Moore.” OFFICE ACTION, p. 5. Applicant respectfully disagrees.

It is well-established that the mere fact that references can be combined or modified does not render the resultant combination or modification obvious unless the prior art also suggests the desirability of the combination or modification. See MPEP §2143.01. Moore neither teaches nor suggests the orientation called for in claims 1, 2, and 8-10. The Examiner inferred such a suggestion from the presumed desirability to “create more area for placing sensors and to reduce components holding sensors (fig. 3a) as implied by Moore.” However, Moore teaches that “on one side of the body 3 there is mounted a strip which is a source 31 of parallel light 32.” Col. 6, ll. 27-28. Thus, in this embodiment, the filter wedges 28 do not include any sensors. In an alternative embodiment, Moore discloses that each filter wedge includes a detector 33. In this regard, “The motors 30 then move their respective wedges until one detector 33 is illuminated and the other is not.” Col. 6, ll. 61-63. In describing this embodiment of its invention, Moore neither directly acknowledges or indirectly suggests that it would be desirable to have more room for placement of the detectors 33 or the claimed orientation called for in claim 1 would provide that desired additional space. In fact, Moore’s teaching of using the detectors to detect light thereby indicating the position of the imaging subject must necessarily acknowledge that sufficient space is present with the filter wedges as disclosed to appreciate the advantages of Moore’s invention. For the Examiner to assume that it would be desirable to modify the orientation of Moore’s filters requires the assumption that Moore’s configuration does not work as disclosed and therefore it would be desirable to manipulate it. As Moore fails to suggest such a manipulation and given the Examiner has not provided any support that one skilled in the art would find it desirable to modify the orientation of the filters disclosed by Moore, Applicant believes the Examiner has failed to establish a prima facie case of obviousness.

Moreover, assuming a prima facie case of obviousness as been established, “a prima facie case of obviousness based on structural similarity is rebuttable if the claimed invention yielded superior or unexpected results. See MPEP §2144.09. In the rejection of claims 1, 2, and 8-10 the Examiner has suggested that the differences between the claimed invention and that disclosed by Moore amount to design choices. Thus, it necessarily follows that results a skilled artisan would expect with the claimed invention would be the same if not similar to those achieved with the filter configuration of filter. However, in contrast to the configuration

Toth et al.

S/N: 10/605,789

disclosed by Moore, Applicant discovered that it was more beneficial to have curved portions of the filter facing the x-ray source. This discovery was made by considering a detector cell with scatter collimation plates aimed at the x-ray focal spot. It was found that the acceptance angle of the detector cell saw more filter surface area if the curved portions of the filter faced the detector. This would result in the detector receiving a greater amount of unattenuated scatter from the surface of the filter. As such, the claimed structure reduces filter scatter which results in lower image noise and reduced scatter artifacts relative to that was expected.

There is no teaching or suggestion in Moore that modifying the orientation of its filter wedges would yield the results of the claimed invention. It is believed, based on the disclosure of Moore and the motivation proffered by the Examiner, that the results with the claimed invention would be similar to those with that disclosed by Moore. However, unexpectedly, the claimed construction and orientation provides different and more desirable results. Accordingly, it is believed that the Examiner has failed to establish a prima facie case of obviousness and, assuming *arguendo*, that such a prima facie case has been established, the claimed invention yielded unexpected results and, as such, claims 1, 2, and 8-10 are directed to subject matter neither taught nor suggested by the art of record.

The Examiner then rejected claim 5 as being unpatentable over Moore and Popescu. Applicant respectfully disagrees with the Examiner with respect to the art as applied, but in light of claim 5 depending from what is believed an otherwise allowable claim, Applicant does not believe additional remarks are necessary and requests allowance of claim 5 based on the chain of dependency.

The Examiner then rejected claim 6 as being unpatentable over Moore, Popescu, and Hsieh. Applicant respectfully disagrees with the Examiner with respect to the art as applied, but in light of claim 6 depending from what is believed an otherwise allowable claim, Applicant does not believe additional remarks are necessary and requests allowance of claim 6 based on the chain of dependency.

Claims 11, 14, and 16 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Moore in view of Hoffman et al. Hoffman et al. is relied upon for its disclosure of components of a CT system; however, Hoffman fails to teach or suggest a pre-subject filter assembly as called for in claim 11. Likewise, Moore fails to teach or suggest such a configured pre-subject filter assembly.

Toth et al.

S/N: 10/605,789

As best shown in Figs. 1, 2a, 3a, and 6, Moore explicitly teaches away from wedge filters having curved portions that face one another. Moreover, by positioning the tail portion of the filter proximate the x-ray source rather than its curved portion provides a space savings benefit that is neither taught nor suggested by Moore. Also, arranging the filters such that the curved portions faced one another yield better than expected x-ray scatter filtration. That is, x-ray scatter filtration by the detector side filter is improved when the tube side filter had its curved portion facing the detector. Similar to the construction called for in claim 1, there is nothing in Moore (or Hoffman) that suggests the advantages realized with the claimed construction called for in claim 11. The Examiner has also failed to show that a skilled artisan would have appreciated those results based on the construction taught by Moore. Moreover, Moore neither disclosed or suggested that its construction proffered the drawbacks overcome by the claimed invention that would have provided the requisite motivation to re-configure the filter it disclosed. As such, Applicant believes that claims 11, 14, and 16 are in condition for allowance.

The Examiner then rejected claims 12 and 13 as being unpatentable over Moore, Hoffman, and Hsieh. Applicant respectfully disagrees with the Examiner with respect to the art as applied, but in light of claims 12 and 13 depending from what is believed an otherwise allowable claim, Applicant does not believe additional remarks are necessary and requests allowance of claims 12 and 13 based on the chain of dependency.

Claims 17 and 19-21 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Popescu in view of Toth et al. and Moore. Notwithstanding the teachings of Popescu and Toth et al., Moore teaches away from the combination suggested by the Examiner. Claim 17 calls for a stationary filter that works in combination with a pair of movable filters, wherein the movable filters are positioned closer to the x-ray source than the stationary filter. As best illustrated in Fig. 5 of Toth et al., the reference teaches a fixed filter 94 that is closer to the x-ray source than the moveable z-filter 98. As such, Toth et al. fails to teach or suggest that which is being claimed. Popescu and Moore, as acknowledged by the Examiner, fail to teach such a claimed stationary or fixed filter. Moreover, Moore discloses that its filter wedges are constructed such that the filters minimally overlap regardless of their position with respect to one another. See Moore, col. 6, ll. 46-49. As such, a skilled artisan would recognize that Moore teaches away from the need for a stationary third filter. Therefore, claims 17 and 19-21 are believed to be in condition for allowance.

Toth et al.

S/N: 10/605,789

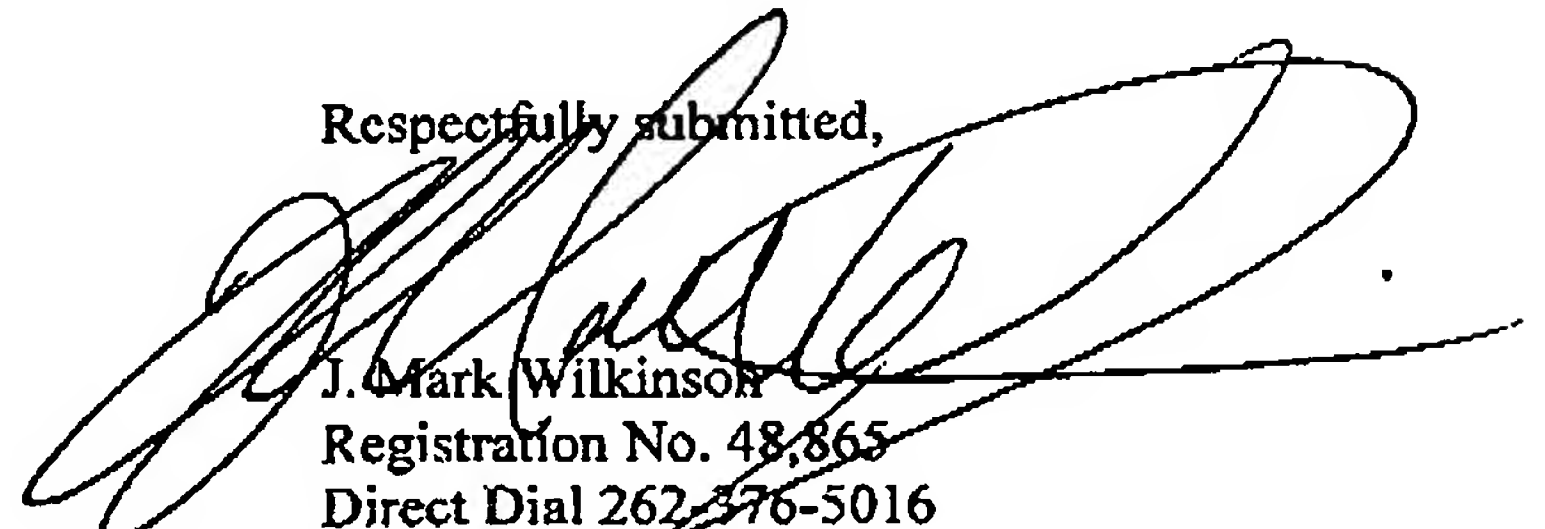
The Examiner then rejected claim 18 as being unpatentable over Popescu, Toth et al., Moore, and Gunji et al. Applicant respectfully disagrees with the Examiner with respect to the art as applied, but in light of claim 18 depending from what is believed an otherwise allowable claim, Applicant does not believe additional remarks are necessary and requests allowance of claim 18 based on the chain of dependency.

The Examiner then rejected claims 22 and 23 as being unpatentable over Popescu, Toth et al., Moore, and Winter. Applicant respectfully disagrees with the Examiner with respect to the art as applied, but in light of claims 22 and 23 depending from what is believed an otherwise allowable claim, Applicant does not believe additional remarks are necessary and requests allowance of claims 22 and 23 based on the chain of dependency.

Therefore, in light of at least the foregoing, Applicant respectfully believes that the present application is in condition for allowance. As a result, Applicant respectfully requests timely issuance of a Notice of Allowance for claims 1, 2, 5, 6, 8-14, and 16-23.

Applicant appreciates the Examiner's consideration of these Amendments and Remarks and cordially invites the Examiner to call the undersigned, should the Examiner consider any matters unresolved.

Respectfully submitted,



J. Mark Wilkinson
Registration No. 48,865
Direct Dial 262-376-5016
jmw@zpspatents.com

Dated: November 16, 2005
Attorney Docket No.: GEMS8081.193

P.O. ADDRESS:
Ziolkowski Patent Solutions Group, SC
14135 North Cedarburg Road
Mequon, WI 53097-1416
262-376-5170